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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/471,501	12/23/1999	FRANCIS BIOLLEY	612.37981X00	7486

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EXAMINER

PECHHOLD, ALEXANDRA K

ART UNIT	PAPER NUMBER
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3673

DATE MAILED: 02/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/471,501

Applicant(s)

BOILLEY, FRANCIS

Examiner

Alexandra K Pechhold

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 6-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 7-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moses et al (US 5,615,977).

Regarding claim 1, Moses discloses the limitations of the claimed invention except for the rigid part having a length at least equal to half of the water depth. Moses discloses a continuous bend flexible/rigid riser system for coupling a subsea location to an offshore platform or vessel comprising a first rigid pipe section (28) coupled at its upper end to the platform and at its lower end to a flexible section, seen as a plurality of intermediate pipe sections (30) coupled to one another and to the upper pipe section (28) by means of flexible couplings (32) as shown in Fig. 2 (Col 4, lines 54-59 and abstract). The flexible couplings (32) allow pivotal movement of one pipe section (30) with respect to the adjacent pipe section (30), and permit angular displacement of adjacent pipe sections (30) of at least 12 degrees in all directions (Col 5, lines 6-12). Therefore, the lower length of pipe interspersed with the flexible couplings (32) has an element of flexibility differentiating it from the upper rigid pipe section (28). In the riser system (10) design of Moses, the object is to reduce the bending stresses transmitted to

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the pipe sections (28, 30) to levels below the material limits for the pipe utilized by optimizing the riser design, and by taking into account the indicated design parameters, the bending stresses can be further reduced and the riser design optimized (Col 5, lines 21-30). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the length of the rigid section to be at least equal to half the water depth, since finding the optimum length to reduce the bending stresses transmitted to the pipe sections is a design choice within ordinary skill in the art.

Regarding claim 7, Moses discloses a holding means as flexible coupling (24), which is provided adjacent the upper end (14) of the riser (12) and serves to attach the riser (12) to the platform (16) (Col 4, lines 31-44). The weight of the riser (12) itself generally suffices to maintain tension on the riser (12) (Col 3, lines 63-65).

Regarding claims 8 and 9, Moses discloses a riser system for coupling a subsea drilling or storage point to a floating vessel (Col 1, lines 8-9). Coupling lines, or "risers", notes Moses, are required for the delivery of fluid to and from the subsea location (Col 1, lines 16-19).

Regarding claim 10, Moses discloses one riser, seen as riser (12).

Regarding claim 11, Moses depicts a modified catenary configuration in Fig. 2, wherein the catenary anchor system is shown as tension member (46) attached to the riser (12) and the seabed (20) at an anchoring point (44) (Col 6, lines 26-35).

Regarding claim 12, Moses discloses additional means for tensioning the riser in column 4, lines 8-11) in disclosing tension members, such as mooring lines and anchor lines.

Regarding claims 13-16, the applicant claims a process used to achieve the product of claim 1. The method of forming the device is not germane to the issue of patentability of the device itself. Therefore, the limitations in claims 13-16 have not been given patentable weight.

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moses et al (US 5,615,977) as applied to claim 1 above, and further in view of Willis (EPO 0467635 A2). Moses discloses the limitations of the claimed invention except for heat insulation means placed on at least the rigid part and/or flexible part. Willis teaches thermally insulating compositions and a method of insulating pipeline bundles and pipeline riser caissons. Willis states that it is necessary to insulate pipelines in order to prevent the temperature of the fluid traveling through the pipeline from significantly dropping, and that it is known to apply an inner or outer insulating layer to pipelines (page 2, lines 4-23). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the rigid or flexible part of Moses to have heat insulation means as taught by Willis, since Willis states on page 2, lines 4-23 that it is necessary to insulate pipelines in order to prevent the temperature of the fluid traveling through the pipeline from significantly dropping, and that it is known to apply an inner or outer insulating layer to pipelines.

***Response to Arguments***


4. Applicant's arguments filed October 1, 2001 have been fully considered but they are not persuasive. Although the pipe sections (28, 30) in Moses et al (US 5,615,977) are indeed rigid pipe sections, their arrangement between flexible couplings (32) gives the lower half section of riser system (10), as shown in the embodiment of Fig. 2, a greater reduction in bending stresses (Col 5, lines 25-30). Moses specifically notes that "Because the stiffness of a flexible coupling 32 is much lower than that of pipe sections 28, 30 of comparable length, the anticipated bending moments and bending stresses transmitted by the flexible coupling 32 are lower than would be the case for pipe sections in the same locations in a conventional rigid pipe riser" (Col 9, lines 43-48). Therefore, Moses is differentiating the invention from conventional rigid pipe risers, and providing an element of flexibility to the riser system. Furthermore, the upper pipe section (28) of the riser system (10) connected to platform (16) in the embodiment of Fig. 2 can be viewed as being a rigid riser part, since it extends for half of the water's depth before the introduction of flexible couplings (32) along the pipe, thereby comprising a rigid pipe section extending half the water depth, consequently having less flexibility.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexandra Pechhold whose telephone number is (703) 305-0870. The examiner can normally be reached on Mon-Thurs. from 8:00am to 5:30pm and alternating Fridays from 8:00am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas B. Will, can be reached on (703)308-3870. The fax phone number for this Group is (703) 305-3597.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1113.

  
**Thomas B. Will**  
**Supervisory Patent Examiner**  
**Group 3600**

AKP  
1/29/02